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ADOPTED BY THE CITY COUNCIL
BY RESOLUTION NO. 76-156 ON
AUGUST 2, 1976



SAFETY ELEMENT

of the
General Plan

City of Carson

THIS ELEMENT IS ACCOMPANIED
BY A LARGE GEOLOGIC MAP,
DATED NOVEMBER, 1975, WHICH
IS ON FILE IN THE COMMUNITY
DEVELOPMENT DEPARTMENT, FOR
REFERENCE PURPOSES

INTRODUCTION

This Plan is an element of the General Plan of the City of Carson and conforms to Section 65302.1 of the Government Code of the State of California. The concerns of the General Plan Guidelines, issued by the California Council on Intergovernmental Relations in September, 1973, are incorporated in this Plan. These guidelines provide local agencies with those items the State believes should be included in the Safety Element of the General Plan.

The Government Code requires a safety element of all city and county general plans, as follows:

A safety element for the protection of the community from fires and geologic hazards including features necessary for such protection as evacuation routes, peak load water supply requirements, minimum road widths, clearances around structures, and geologic hazard mapping in areas of known geologic hazard.

The Plan is designed to serve as an official guide for use by the City Council, Planning Commission, Fire Department, other interested governmental agencies and private citizens to introduce considerations in the planning process to reduce loss of life, injuries, property damage and economic and social disruption resulting from natural or man-made hazards. However, this Safety Element is not intended and shall not be deemed to cover or attempt to regulate matters within the jurisdiction of other governmental agencies.


The Safety Element is an assessment of major hazards to the City, not a contingency plan or civil defense plan. It analyzes the causes and potentials of safety hazards and suggests ways to alleviate or lessen these risks.

The elements of the General Plan are all to some degree, related. The Seismic Safety Element describes the history of seismic activity in the Carson area and locates known fault zones and geologic soil conditions. The Element recognizes seismic hazards and their relationship to the BUILDING CODE, describes earthquake hazards in the Carson area and briefly outlines a Seismic Safety Plan for the community.

The Safety Element will attempt to elaborate on the Seismic Safety Plan and include sections relating to existing and potential fire, explosion, geologic, crime, and flood hazards.

The Seismic Safety and Safety Elements are key inputs to the Land Use, Circulation, Open Space, Conservation, and Parks and Recreation Elements of the Carson General Plan.

All policies and programs outlined in the Safety Element are intended to provide suggested direction and a course of possible future action for the City and its departments. It is not intended to cause the City or its contracting agencies to commence on new programs, unless the programs have been individually adopted by the Council and funded through the normal budgetary process.



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CITY OF CARSON
CALIFORNIA

SAFETY ELEMENT
of the
GENERAL PLAN

Prepared by the
COMMUNITY DEVELOPMENT DEPARTMENT
PLANNING DIVISION

August 2, 1976

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FIRE

FIRE AND RESCUE

FIRE

The first duty of the Los Angeles County Fire Department is to prevent outbreaks of fire that may endanger public safety and place a heavy economic burden on the community through the destruction of personal and real property. Fire Fighting is the second fundamental duty as fires do occur despite fire prevention efforts.

Fire Fighting includes (1) saving life, (2) localizing fire damage, and (3) extinguishment with a minimum loss. In actual practice the prompt extinguishment of fire usually provides the most effective means of saving life and preventing exposures.

At present there are four Los Angeles County Fire Stations within the City of Carson and two immediately adjacent to the City. These adjacent stations are also responsible for portions of the City in addition to some unincorporated areas.

These six fire stations have the following equipment assigned to them:

- 7 Engine (Pumper) Companies
- 2 Truck Companies (1 ladder and 1 snorkel)
- 2 Paramedic Rescue Squads
- 1 Foam Unit
- 1 Deluge Unit
- 3 Reserve Engines (Pumpers)
- 1 Reserve Paramedic Rescue Squad

Other companies, special equipment, manpower and chief officers assigned to the Los Angeles County Fire Department's 128 fire stations and other sites are also available to respond to the emergency needs of the City of Carson.

Each of the six stations listed has a particular portion of the City in which they are responsible for conducting required fire prevention inspections, pre-fire planning inspections, public education programs, fire hydrant maintenance, City business license inspections and other related fire protection activities. They also give paramedic and first aid demonstrations.

A list of all local fire stations (and fire equipment at each station) is located in the Appendix Section.

FIRE PERSONNEL AND ORGANIZATION

The City of Carson is assigned to Battalion 7 which is a part of Division 1 of the Los Angeles County Fire Department.

A Division Assistant Fire Chief is the Division Commander and represents the Los Angeles County Fire Chief as the City of Carson's Fire Chief. His office is at Fire Station 10 in Carson. There is a Battalion Chief assigned to each of the three platoon shifts. His office is at Fire Station 36, also in Carson.

There is also one Fire Prevention Captain and four Fire Prevention Inspectors who are assigned to Fire Prevention Area 6 which serves the City of Carson. They maintain offices at Fire Station 105.

There are other Fire Prevention Specialists who are assigned to the Los Angeles County Fire Department Headquarters in East Los Angeles who make inspections within the City. They are in the field of Petroleum and Chemical, Schools, Institutions and Hospitals, Water and Hydrant Section, and other technical details.

The other 120 Fire Stations in the Los Angeles County Fire Department are also utilized as back up for Carson Fire Stations. There are specialized and support men and equipment available at these stations.

MUTUAL AID AGREEMENT

The Los Angeles County Fire Department also has a Mutual Aid Agreement with all of the other cities in Los Angeles County who maintain their own fire departments.

The Carson Fire Stations will be starting a pilot program shortly with the Los Angeles City Fire Department. It is called Automatic Aid. Whenever there is a fire in either jurisdiction, the closest fire units will respond to assist each other. It is felt that this will improve fire protection for both cities.

RESCUE

Each of the six stations listed has a particular portion of the City in which they are responsible for conducting required fire prevention inspections, pre-fire planning inspections, public education programs, fire hydrant maintenance, City business license inspections, and other related fire protection activities. They also give Paramedic Rescue and First Aid demonstrations.

An integral part of the Fire Department is the Rescue Service provided to the community. This includes extricating victims trapped in buildings, vehicles and cave-ins, and providing emergency first aid treatment to the sick and injured. Each Fire Department apparatus has a resuscitator which is utilized for people who stop breathing due to sickness or injury.

The Fire Department has two Paramedic Rescue Squads assigned to Carson Fire Stations. There are 30 additional Paramedic Rescue Squads within the Los Angeles County Fire Department. Six of these are within five miles of the City limits of Carson and are used as back-up units.

PEAK LOAD WATER SUPPLY

In order that the City of Carson is prepared for emergencies, it is necessary that all public water systems and storage facilities have a capacity sufficient to simultaneously supply domestic needs, required fire flow to hydrants,

and provide an adequate reserve water supply. The Fire Department has determined that major portions of the City are serviced by sufficient water systems to provide both domestic needs and fire fighting needs simultaneously.

Fire flow requirements should be based upon the maximum fire that can be expected. The capability of the Fire Department can change, by the addition of more fire stations, manpower, or aid from outside fire departments. The total water for fire protection necessary for the maximum fire cannot be easily changed once the source of supply and fire hydrants are installed.

Two water purveyors, Dominguez Water Company and Southern California Water Company, serve the City of Carson. These companies, with few exceptions, meet or exceed the Fire Department's current water main and fire hydrant standards. The exceptions are some areas which are serviced by 4 inch or smaller water mains and certain areas which have 2½ inch hydrants instead of the standard 4 X 2½ inch steamer hydrant. All new developments are required to meet present day standards for fire flow, duration, and hydrant size and spacing. At present, all land divisions are reviewed by the Fire Prevention Bureau and necessary new fire hydrants, required fire flow and access roads are made a condition of approval of the subdivision of land.

Water companies have five year master plans for new construction and additional fire hydrants as needed. This does not include replacements.

There are reservoirs totaling 14 million gallons of water in the Carson Area. Pressures are maintained at from 75 to 100 pounds per square inch. In addition, there are 7 connections to the Metropolitan Water District which are also considered as storage because of the unlimited source.

FIRE AND OTHER POTENTIAL EMERGENCIES

Like many cities in California, the City of Carson has attracted a large number of industrial corporations. Some of these businesses produce, manufacture, store or in some way handle flammable and/or potentially explosive materials.

Truck and rail services transport raw materials into and through the City. Finished products are transported by truck and rail to various destinations outside of the City. In some cases, this activity requires the loading, unloading and transportation of highly volatile materials. It is essential that transportation procedures are constantly reviewed and improved to help provide maximum safety for the citizens of the community.

The Los Angeles County Fire Department makes recommendations for the improvement and installation of facilities and equipment that will provide for a fire safe community. They work with other governmental agencies, utilities and private companies in achieving these goals; for example, the Fire Department recommends the installation of additional grade separations, such as the one located at 223rd and Alameda Streets, to further reduce the danger of accidents at major intersections of railroad switching yards.

GOALS

In the preparation of the Safety Element of the General Plan, it is felt that goals should be established by the Fire Department to better prepare for the implementation of future safety programs for the City of Carson. These goals would help organize and utilize governmental resources for the mitigation or elimination of safety hazards.

So that the most efficient means of fire and rescue service may be provided for the citizens of Carson, the Fire Department has established the following goals:

1. Provide for the protection of life and property from both natural and man-made hazards within the community.
2. Provide for the protection of public order through effective fire protection and rescue programs.
3. Work closely with other City, County, State, and Federal departments and the citizens of the community to develop and enforce emergency communications and disaster preparedness programs to help ensure the overall health and safety of all those who reside and/or work within the City of Carson.
4. Prepare and present to the residents, schools, businesses, and industries up-to-date educational programs on fire safety and rescue practices.
5. Maintain proper fire prevention and pre-fire planning inspections of all commercial, public, and industrial occupancies within the City.
6. Maintain the highest degree of proficiency in the fields of protection and rescue practices by providing continuous updated training and educational programs to members of the Fire Department.

To obtain these goals the Fire Department must constantly take inventory of its men, equipment and facilities. The cost of personnel is at a premium so the maximum effort must be obtained from each person. Consistent with the Los Angeles County Fire Department Uniform Fire Code and other accepted standards, the newest and most efficient methods will be used so that the Los Angeles County Fire Department will continue to make the City of Carson a safe place to work and live.

Every man assigned to the fire stations in Carson has the responsibility of making fire prevention inspections, City business license inspections, pre-fire planning inspections, and educational and training programs, in addition to being a fire fighter and providing rescue services.

IMPLEMENTATION

The critical factor in any safety planning effort is the implementation of the goals. This process, achieved through organized programs, trained personnel, and adequate funding, ultimately brings about realization of the plan.

The Los Angeles County Fire Department has initiated plans to locate and maintain the proper number of men and equipment at fire stations in and adjacent to Carson to be able to reach any part of the City of Carson within four minutes.

Plans have been finalized for purchasing a reserve engine (pumper) and converting it to a specialized Foam Apparatus for fighting flammable liquid fires. Parts and material for this apparatus have already been purchased. This unit will be located at Fire Station No. 127.

New and improved types of hoses, nozzles, breathing apparatus, extinguishing agents and paramedic apparatus are presently being tested to provide better and safer protection to the fire fighters and to the community. New types of apparatus are used on a trial basis and closely evaluated by the Fire Department with the cooperation of other fire related organizations, such as the International Association of Fire Chief's and National Fire Protection Association, and Manufacturers of Fire Equipment. Thus, many of these improved items are placed into service for increased fire protection.

Legislation

The Fire Department is working closely on many pieces of legislation that affect the community in fire protection and/or paramedic rescue services. Some examples are:

1. The Paramedic Law, presently a pilot program, is being finalized. The Fire Department is working to maintain high standards.
2. Fire warning systems are now being required in new construction (residential).
3. A recently adopted High Rise Ordinance will provide safer and better protection for buildings over three stories in height.
4. The new updated Uniform Fire Code is nearing completion.

Community Cooperation and Communication

Since the 1971 San Fernando Earthquake, the Fire Department made plans to provide a new dispatching and communications system for \$1.4 million. They are now using radio exclusively to transmit alarms to fire stations, and

are also entering the field of radio alarm street boxes to receive alarms. Neither of these systems are dependent upon land lines.

Efforts have been made to improve the communication systems in time of emergency, in addition to improving cooperation with other departments, agencies, and the community. The following are examples:

1. The Fire Department is now provided with a H.E.A.R. (Hospital Emergency Assistance Radio) network to facilitate coordination with hospitals.
2. The Fire Department maintains close liaison with the Sheriff's Department and the Office of Emergency Services, Fire and Rescue Division.
3. Mobile radios on all fire apparatus and Chief Officer's vehicles have capabilities of base to vehicle and vehicle to vehicle communications.
4. Fire Department radio transmitters in the proposed Mobile City Hall Vehicle and at the Emergency Operating Center in the new City Hall will help considerably in the coordination of emergencies.
5. All mobile units have capabilities of using the Mutual Aid Frequency (Frequency 6 radio band). The budget has been approved so that the Base Station will also be able to utilize this band.
6. The Fire Department is working closely with the City Director of Community Safety on all emergency preparedness planning.
7. Fire Department Emergency Services Section personnel and equipment are now available and will be utilized as needed.
8. Plans are being completed to use the Fire Prevention Bureau personnel as back up to the Building Department on immediate inspections of buildings, pipelines, and other facilities involved in major disasters such as fire, earthquake, flood, explosion, etc.
9. The Emergency Medical Triage Team assigned to Harbor General Hospital will be used in all emergencies where needed. The Fire Department Paramedics are part of the Triage Team. The Team offers quick, efficient handling of the sick and injured. Equipment and medical kits are maintained at Harbor General Hospital.

for use by the Triage Team.

Educational Programs

It is essential that the Fire Department conduct extensive training and educational programs to familiarize the community with current methods of fire prevention and rescue practices.

At present all public schools in the City of Carson are provided educational programs on fire safety. Private and parochial schools are also offered this service. The Fire Department should possibly expand this program to include junior and senior high schools; however, these programs must be tailored for an older age group.

The following programs should be implemented, maintained, and expanded as necessary:

1. Expand on-going programs of fire safety and rescue practices throughout the year to residents, businesses, industries, and other clubs and organizations. It is important to keep the citizenry informed of fire safety programs.
2. Arrange for Specialists from the Fire Department's Fire Prevention Bureau to present programs on particular subjects to community groups and interested agencies.
3. Personnel assigned to the local Area Fire Prevention Bureau Office and Fire Stations also provide many programs. Plans are being made to update and improve these presentations. Some in the planning stage are:

Paramedic Programs

Home Inspections

E.D.I.T.H. (Exit Drills in the Home)

Fire Safety in Businesses

Fire Safety in Industries

First Aid Training for City Employees, Industries, and Other Groups

4. Updated printed material is being designed to assist in these programs. Telephone stickers are periodically printed and distributed throughout the community.

Fire Inspections and Drills

A good fire prevention and pre-fire planning inspection program goes a long way in preventing and reducing large loss fires. More important, it definitely should reduce deaths and injuries caused by fire. The following programs help implement these safety goals:

1. All fire station personnel, along with specialists from the Fire Prevention Bureau, are required to make annual inspections of

of every commercial, industrial, and public occupancy. Some occupancies require at least three inspections per year.

2. Record keeping is being updated so that information can be more readily retrieved.
3. Records of occupancies that may have a particular flammable product or other potentially hazardous substance are maintained on each fire apparatus to be referred to in case of an emergency.
4. Fire drills in buildings, plans and residences are being encouraged.

It is proposed to send all Carson based Los Angeles County Fire Department personnel to quarterly training sessions at the Los Angeles County Fire Department Training Center in East Los Angeles. Also, the Fire Department will again send all personnel from the Carson Fire Stations to the Oil Fire Fighting Training Center in Del Valle. Future City planning should consider recommending to the Los Angeles County Fire Department that they construct one of their facilities within the Carson area. This would allow for greater use of these specialized facilities.

The Fire Department is continually updating their training methods and educational program. All Chief Officers are attending organization management seminars provided by the Department. Team building is being stressed. Other continuous training programs in progress are as follows:

1. Fire Apparatus Driving Techniques
2. Fire Service Hydraulics and Pump Operation
3. Radiological Monitoring
4. Flammable Liquid Fire Fighting
5. Fire Fighting Techniques
6. Hose Laying Operations
7. Breathing Apparatus
8. First Aid
9. Paramedic Continuous Education
10. Building Inspection Procedures
11. Handling of Dangerous Chemicals and Other Flammable Materials
12. Water Supply
13. Fire Company Administration

Water Supply

The Fire Department will continue to work with the Dominguez Water Corporation and the Southern California Water Company in upgrading the water service and fire flow requirements where needed. The major portion of the City is serviced by a sufficient water system to provide both domestic and fire protection simultaneously; however, the following programs must be implemented to improve and maintain an adequate water supply in time of emergency.

1. The Fire Department will work with the water companies to upgrade the water service to those areas of the City where needed.
2. The Fire Department will continue to require on-site fire protection systems due to excessive distance from the public street to the structures.
3. The Fire Department will continue the policy of determining the fire flow requirements of private water distribution facilities in new areas of development.
4. The Fire Department plans on replacing older-type fire hydrants which have only one 2½ inch outlet with new types with one 2½ inch and one 4 inch outlet.
5. The Fire Department will continue to enforce Fire Department standards regulating fire flow, duration, and hydrant spacing requirements for subdivisions, minor land divisions, and building plans.

GEOLOGY

GEOLOGY

BACKGROUND

The growing concern of communities for geologic safety has prompted the State Legislature to require a Seismic Safety Element as well as the Safety Element of the General Plan. The Seismic Safety Element of the Carson General Plan was adopted in February, 1973, and reviews the history of seismic activity in Carson, locates known fault zones, discusses geologic soil conditions, outlines seismic hazards, discusses the relationship of the building code to safety and establishes a seismic safety plan for the community.

The Safety Element will briefly discuss the potential geologic hazards in the City and establish goals and programs to improve the safety of the community during seismic activity or other geologic disturbances. Seismic activity is more completely discussed in the Seismic Safety Element of the General Plan.

The City of Carson contracts with the County of Los Angeles who reviews parcel maps, tract maps, and individual sites for geologic input.

There are two major fault zones in Southern California which have an effect on the City of Carson. These are the Newport-Inglewood Fault and the San Andreas Fault. These faults are considered active and the Newport-Inglewood Fault has caused several shocks in the South Bay Area in 1920, 1921, 1933, 1970 and 1975. The San Andreas Fault zone is located approximately 45 miles to the northeast of Carson. Locally, there are two inactive fault zones, which are part of the Newport-Inglewood Fault: The Cherry Hill Fault and Avalon-Compton Fault. (Geologically active refers to surface ruptures or manifestations.) Another, the Palos Verdes Fault, is located approximately three miles westerly of the City and is also considered inactive.

Even though none of the local faults are classified as active, it cannot be assumed that these faults will remain dormant. Also, although the epicenter may be located on a distant fault, ground shaking can occur for several miles. With Carson's soft alluvial soils and sandy base, the ground shaking tends to have a rolling effect.

GEOLOGIC HAZARDS

Geologic hazards include earthquakes, landslides and slippage, and settlement (subsidence). These are discussed in greater detail in the Seismic Safety Element of the General Plan.

Earthquakes

Actual ground rupture is, of course, the most threatening result of an earthquake. The oscillating or rolling effect of ground shaking can have damaging results as well. There are several unique conditions in the South Bay Area, including the City of

Carson, which must be considered in view of the susceptibility of the area to significant wave motion due to its underlying soil structure.

Industry

Carson has many industries which could be damaged and could become hazardous to the community should a severe earthquake occur.

Refineries and Chemical Processors

The equipment and facilities contain hydrocarbons, gases and chemicals. Damage to the equipment and facilities could cause fire or release of gases or chemicals. The City Building Code governs the construction or installation of the equipment and facilities. However, the Building Code exempts those tanks that have a height which does not exceed 1-1/2 times their diameter. The industry represents that exempted tanks are designed and built in accordance with accepted material design criteria and industrial standards.

High Rise Buildings

Although there is only one structure in the City of this nature, should ground rupture or shaking occur, this building would be especially susceptible to the soil wave effect experienced in the area.

Overpass Collapse

The numerous freeways and overpasses in the City could collapse if an earthquake of moderate magnitude were to occur in the area. Such occurrence could separate portions of the City -- north from south and/or east from west.

Street and Highway Rupture

Streets and highways could be damaged when earthquakes occur, with possible traffic disruption and injury.

Communications and Utilities Disruption

Telephone, electricity, water, gas and other utilities and communications networks can be disrupted by an earthquake. The effects from this are obvious.

Property Damage

Property damage to various degrees may occur from seismic activity. It has been found that masonry buildings constructed prior to 1933, (i.e., that were constructed using lime mortar for joints, poor quality bricks, inadequate structural ties connecting roofs and walls, and no reinforcing steel in the walls) are particularly hazardous during seismic activity. A survey was made in 1971 in the City to determine if any masonry structures built prior to 1933 exist; it was found that only one building remains in this category in the City of Carson.

NON-SEISMIC HAZARDS

Non-seismic hazards are geologic hazards which are not the result of a seismic event. These hazards include slope instability, slope erosion, differential settlement, and land subsidence.

Slope Instability and Erosion

Due to the general flat to undulating terrain of the City, landslides and land slippage are not significant problems. Even in the undeveloped portions of the Dominguez Hills area, the only problem to date has been slope erosion during rains. For purposes of development, all grading must be two horizontal and one vertical. Anything steeper must be justified by a stability analysis report.

All subdivision maps are reviewed by the Geology Division for any potential geologic hazards. Proposed development on individual sites that may be considered to have potential geologic hazards are also reviewed by the Geology Division and Building and Safety Division.

Subsidence

Differential settling due to fluid withdrawal has not been observed in the City, according to the City Engineer. There are areas, however, where previous organic landfill activities have resulted in decomposition, production of methane gas, and differential settling. These sites will require extensive studies prior to development, in order to minimize possible dangers to an acceptable level.

While there are currently operating oil well sites in the City, subsidence is controlled through a water injection program. According to the State Division of Oil and Gas, as oil is pumped out of the ground, water is injected to replace it. This "water flooding" puts any gaseous substances back into solution, thus cutting down on further leakage of "free gas". Water injection has historically controlled subsidence as well as any other method.

Differential Settlement of Sanitary Landfills

Currently, there are 18 sanitary landfills within the City limits. Six of these are Class III landfills (for nonwater soluble nondecomposable inert solids) and the rest are Class II landfills (for chemically or biologically decomposable material). There are no Class I landfills (for toxic or hazardous substances) within the City limits.

Potential problems related especially to Class II sites include

production of methane gas and differential settlement of the land due to the decomposition of the fill material. Since explosive gases may migrate to adjacent properties, any proposed developments on or near these areas (see Sanitary Landfill Map) would have to be thoroughly investigated and reviewed before approval.

SANITARY LANDFILLS

Sanitary landfill sites were designated by the Project,
Planning and Pollution Control Division of the Department
of the County Engineer.

	<u>NAME</u>	<u>CLASS</u>
1)	B. K. K.	II
2)	Cal Compact	II
3)	Martin Adams	II
4)	Southwest Conservation, Inc.	II
5)	Gardena Valley No. 1 and 2	II
6)	Gardena Valley No. 4	II
7)	Gardena Valley No. 5	II
8)	Broadway - Main	II
9)	Alameda Street	II
10)	Hardwicks	II
11)	California By Products	II
12)	Southwest Steel No. 1	III
13)	Sanitation Districts	III
14)	Shell Chemical	III
15)	Werdins	III
16)	National Supply Co. (Outside of West City Boundary)	III
17)	Southwest Steel No. 2	III
18)	Gardena Valley No. 6	III
19)	Gardena Valley No. 6	II
20)	Miscellaneous Dump Sites Abutting City Boundaries	II

LEVEL OF ACCEPTABLE RISK

To achieve complete geologic safety would involve removal of most of California's population to places where seismic activity is unknown. The question becomes: What is an acceptable level of geologic safety that a governmental entity should provide?

It is the government's responsibility to provide adequate current data to the public. It is also the government's responsibility to ensure minimum but realistic building and safety codes for public buildings, hospitals, and other vital structures as well as for all structures. In this context the term "realistic" should be defined for clarification: Maximum safety is impossible to achieve with present levels of knowledge regarding earthquakes. It is necessary, however, to plan realistically for what we can assume to expect based on past evidence in the Southern California region as a whole. By averaging all known magnitudes of historical earthquakes in Southern California, we can estimate that an earthquake would have a magnitude of 6.2 on the Richter scale--.4 below that which struck San Fernando in 1971.

More damage can be expected in those residential, industrial, and commercial buildings built prior to the building code revisions subsequent to the San Fernando earthquake. Although a number of such structures exist in the City, those built after 1933 meet the earthquake provisions of the Building Code in effect at the time they were built.

For hospitals, public buildings, disaster relief stations, schools, and other vital structures such as fire, sheriff and police stations and for public utilities and communications systems, maximum safety must be ensured. The Building Code has been more stringent for these uses.

Since there are no known active surface faults in the City, it is not necessary to restrict building at the present time. As discussed in the implementation section, there are two special studies zones of potential weakness, and new structures on these zones will be required to have approved geologic reports.

The City will also encourage all affected State, regional, county, and local governments to proceed with the accumulation of data regarding geologic hazards.

Emergency and recovery operations, such as fire, rescue and police, are currently contracted from Los Angeles County. The City has an adopted Civil Defense Program and an Emergency Operations Plan as discussed elsewhere in this report.

GOALS AND OBJECTIVES FOR REDUCING GEOLOGIC HAZARDS

- 1) To implement procedures and legislation to reduce geologic hazards to an acceptable level of risk.
- 2) To promote local, regional and state-wide programs, research and legislation which will provide scientific identification and practical protection from geologic activity.
- 3) To maintain and improve, when necessary, present zoning and subdivision regulations requiring geologic approval prior to project implementation.
- 4) To ensure the maximum protection from geologic hazards in compliance with Division of Mines and Geology Standards and such other standards as adopted by ordinance or resolution.
- 5) To collect data relating to local geology and ensure its availability and retrieval.
- 6) To notify property owners and/or tenants of known geologic hazards relating to those structures that could be vulnerable during an earthquake.

IMPLEMENTATION

The Alquist Priolo Act (modified by Senate Bill No. 5) provides funds to ensure that research is done to prepare special study zone maps delineating all potentially active fault zones in the State of California and establishing a one-eight mile wide construction zone on each side of the faults. To the extent consistent with the Act, all new construction within that area, except those structures specifically exempted, will require a geology report since research conducted by the Division of Mines and Geology has established a realistic necessity. There are two special study zones within the City as shown on the following map. These zones correspond to the Cherry Hill and Avalon/Compton Fault zones discussed earlier. This Act became effective January 1, 1976. The City of Carson also has an Earthquake Contingency Plan included within the Emergency Operations Plan. This Plan will be reviewed and updated as necessary.

The City of Carson has adopted the Los Angeles County Building Code. This Code is mainly derived from the Uniform Building Code which is published by the International Conference of Building Officials. The City of Carson became a member of this organization in 1975. It is a nonprofit organization owned and controlled by the member cities, counties, and states.

Each year, as the County revises its Building Code to incorporate the latest building procedures, the City of Carson reviews these changes and adopts necessary revisions for the Carson Building Code.

In addition, current geologic data and information from the State Division of Mines and Geology are reviewed periodically to ensure that the latest technology is incorporated.

To further research, the Building Code requires that every building over six stories in height with an aggregate floor area of 60,000 square feet or more, every building over ten stories in height (regardless of floor area) and unusually-shaped structures be provided with three approved recording accelerographs.

The current Building Code requirements are considered adequate regarding the use of accelerographs in buildings.

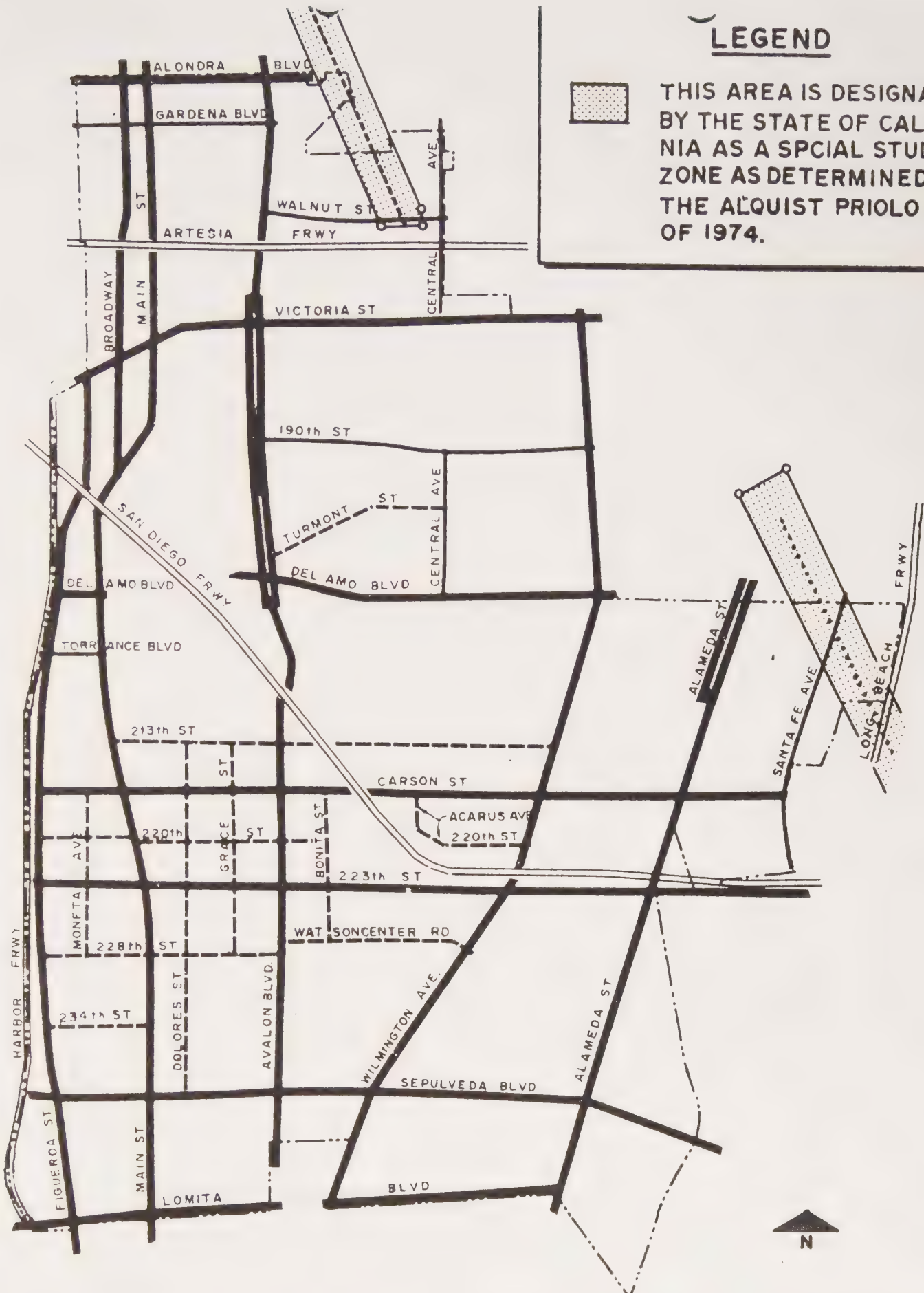
Once a geologic condition is identified, structural design can be incorporated in buildings to minimize seismic hazards. Methods have also been developed to deal with geologically active earth, e.g., utility companies have developed flexible lines and automatic shut off valves for use where activity is anticipated.

With the above-mentioned features already in the implementation stage, the City of Carson is acceptably free of risk geologically.

LEGEND



THIS AREA IS DESIGNATED BY THE STATE OF CALIFORNIA AS A SPECIAL STUDY ZONE AS DETERMINED BY THE ALQUIST PRIOLO ACT OF 1974.



CITY OF CARSON

SPECIAL STUDIES ZONES

FLOOD

FLOODING

The City of Carson in most winters is affected by flooding in certain areas (see map on page 26). This is due to the fact that Carson has a very low elevation, with some areas actually at sea level. Many of the low lying areas have been filled.

Several of the major streets, highways, and intersections flood during heavy winter rains; and occasionally, homes have also been damaged by flood waters or mud slides. Although there is no threat to life, there are flood related problems, such as property damage, auto accidents, and erosion.

The following street locations have deficient drainage situations:

- a. Underpass at the Union Pacific railroad on Santa Fe Avenue, south of Carson Street.
- b. Main Street on the west side, south of Francisco Street.
- c. Sepulveda Boulevard on the north side between the Dominguez Channel and the City's easterly limit.

Other than some local street drainage problems, these are the current highways deficient in drainage.

A second reason for flooding is the urbanized character of the Carson area. Urbanization and the resultant ground coverage with buildings and impervious surfacing materials reduces the ground's ability to absorb water, thus increasing surface runoff. Carson has semi-impermeable soils; thus, existing natural drainage is relatively poor. Runoff, i.e., the amount of water not absorbed by the earth, averages 70-80 percent in most areas, but is as high as 95 percent in low lying areas. For this reason, the City is served by a network of major and minor storm drains. Most areas of the City are now considered relatively dry. It is only in the early developed portions of the City where flooding problems occur, and currently drains are being constructed to eliminate this problem.

Several agencies are involved in grading, drainage, and flood control. The City's Department of Public Works is responsible for maintaining the City's streets during periods of inundation. The City Engineer (by contract, the County Engineer) is responsible for local grading and private drainage plan approval. In cases of residential, commercial, or industrial construction, a private engineer designs the drain for approval by the City Engineer. When completed, the Los Angeles County Flood Control District maintains the drain. The Los Angeles County Flood Control District is the agency responsible for regional control and maintenance of major storm drain channels, feeder channels, and private drains. The Flood Control District has identified the drainage deficient areas of Carson and, in cooperation with the City, has implemented a time-phased program of corrections for these deficiencies.

FLOOD HAZARDS

When flooding occurs, hazards in many forms may occur.

1. Property damage from water and mud.
2. Street flooding, causing property damage, hazardous driving conditions and increase of traffic collisions.
3. Electrocution resulting from wet wiring.
4. Fire resulting from damage due to flood waters, i.e., flammable materials flowing on top of flood water, etc.
5. Mudslides, landslides and erosion.
6. Vandalism, theft and increase in certain types of activities, i.e., homemade rafts, canoes, etc.
7. Drowning victims.

FLOOD PROTECTION

When flooding occurs, several agencies offer assistance, per the City of Carson Emergency Plan:

1. Department of Public Works pumps areas in the public right-of-way which are inundated, provides sandbags to residents, places barricades on streets where cars may stall-out, and assists in evacuation if necessary.
2. Department of Parks and Recreation - provides shelter at several locations throughout the City in cooperation with the American National Red Cross, and assists other agencies as necessary.
3. Los Angeles County Fire Department - offers assistance as necessary, i.e., ladders, etc.; provides rescue for people trapped in stalled cars or flooded homes.
4. Los Angeles County Sheriff's Department - assists in evacuation as necessary, cordons off flooded areas; in any rainstorm, monitors areas known to be susceptible to flooding, and notifies the City Public Works Department if flooding seems imminent; supervises barricading and closing of flooded areas; makes notifications and coordinates responding agencies and other units of Sheriff's Department; serves as information center for inquiries; safeguards property from vandalism and theft; issues sig-alerts and press releases; provides aerial surveillance when possible; offers use of station facilities under controlled, pre-arranged conditions.

5. Los Angeles County Flood Control District and Los Angeles County Road Department - provides sandbags and assist in clearing streets and drainage channels.

National Flood Disaster Protection Act of 1973

The Flood Protection Act requires national identification of flood-prone areas. Such areas must participate in the Federal Flood Insurance Program in order to be eligible for Federal loans or subsidies. The program is operated under the auspices of the U.S. Department of Housing and Urban Development. H.U.D. has retained a consultant to determine what areas of the United States are prone to flooding. When construction occurs in these designated areas, the owner/developer may not acquire a loan from a Federally insured lending institution unless flood insurance has been obtained and the buildings are to be flood-proofed, i.e., built on raised foundations or made watertight by method of construction.

Currently, there are 15 areas in the City designated by the H.U.D. consultant as flood-prone; however, the City Engineer has contested the accuracy of the mapping. The appeal is pending. According to the City Engineer, in conjunction with the Department of the County Engineer, Design Division, there are currently two areas of flood hazard in the City:

1. Northeast corner of Lomita Boulevard and Wilmington Avenue: This area is being developed industrially; and during development, storm drains will be constructed.
2. Southwest and southeast corner of Avalon Boulevard and the Artesia Freeway: The area to the southwest of the intersection is zoned planned residential with commercial at the corner; the southeast corner is zoned commercial--both are undeveloped. When construction occurs, storm drains will be installed.

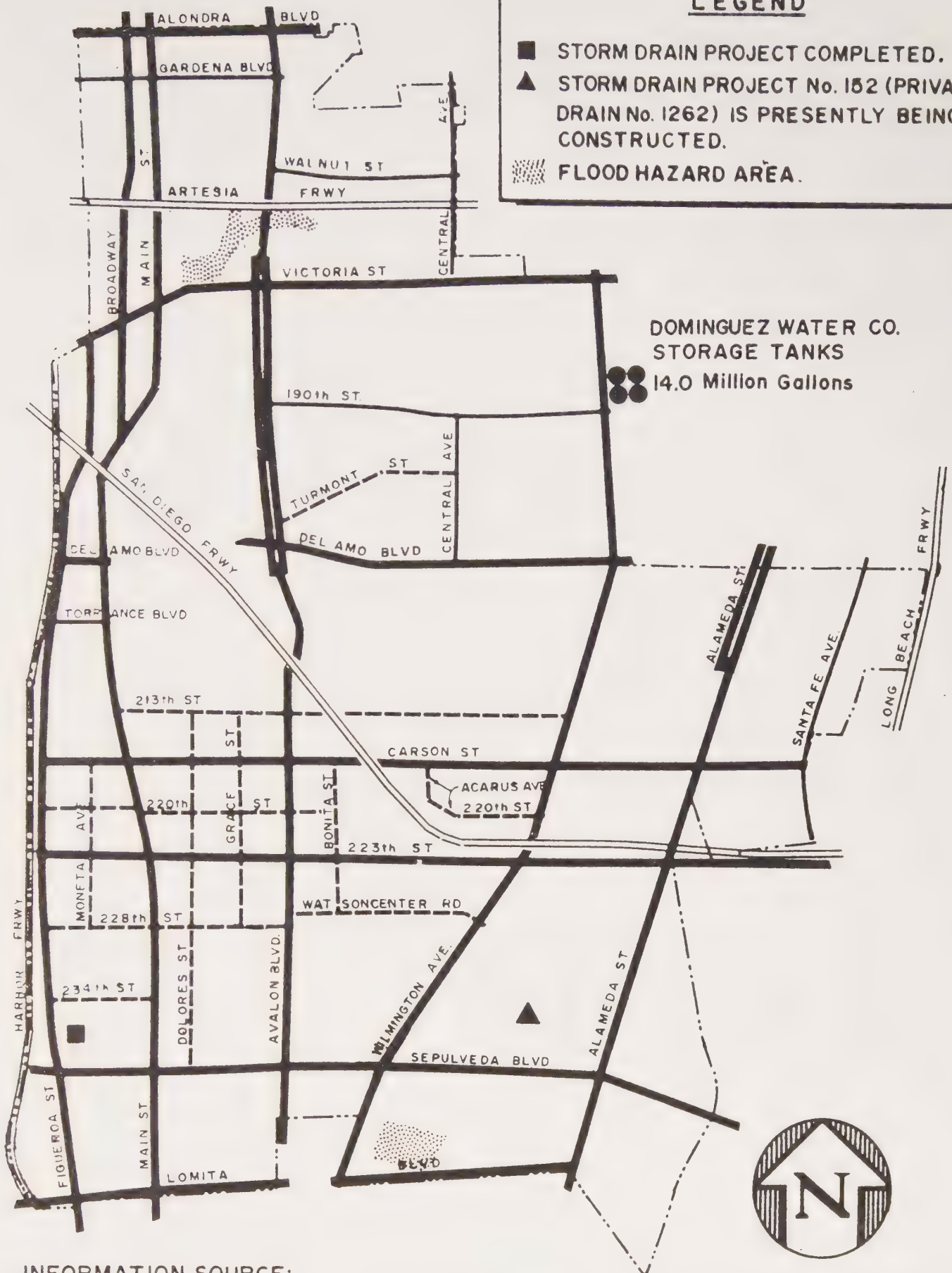
Current programs are underway to eliminate flood hazards in the developed areas of the City. The undeveloped areas that are currently flood-prone will have this hazard eliminated when developed. During the heavy rains experienced during the month of December, 1974, there was flooding in the Figueroa Street, Sepulveda Boulevard and Carriagedale Drive areas, and also on land located northwest of Wilmington Avenue and Sepulveda Boulevard. Recently, a comprehensive storm drain system has been installed in the Figuerroa-Sepulveda-Carriagedale area to control and drain flood waters accumulating in that area. Storm Drain Project No. 152, (private Drain No. 1262), a project of the Carson Redevelopment Agency, is presently being constructed in the Wilmington-Sepulveda area to protect the property in that vicinity from flooding conditions.

LEGEND

- STORM DRAIN PROJECT COMPLETED.
- ▲ STORM DRAIN PROJECT No. 152 (PRIVATE DRAIN No. 1262) IS PRESENTLY BEING CONSTRUCTED.
- ▨ FLOOD HAZARD AREA.

DOMINGUEZ WATER CO.
STORAGE TANKS

14.0 Million Gallons



INFORMATION SOURCE:

DEPARTMENT OF THE
COUNTY ENGINEER,
DESIGN DIVISION

CITY OF CARSON

FLOOD HAZARD AREAS

CRIME

CRIME

CRIME PREVENTION PROBLEMS

In recent years, statistics have shown that crime has greatly increased in our urban and rural communities. The relationship between crime and land use characteristics is often very subtle and this relationship is seldom emphasized when new design standards and land use controls are established.

It is anticipated that the adoption of the Safety Element for the City of Carson will help formulate new development techniques and Building Code standards to further prevent crime in our community.

Surveillance

Currently, the success of the Sheriff's Department, in their crime prevention efforts, is greatly dependent upon surveillance. Since this ability is limited by the number of men and patrol cars available for patrol, the citizens must accept greater responsibility for surveying their immediate environment.

In the design of new residential developments, landscaping and structures should be located in such a manner that the view from public streets is permitted to penetrate the development as much as the concern for privacy will permit. It becomes apparent that value judgments must be made by each developer as to how much risk is acceptable in the design of the project.

A sense of ownership, and thus control of activities in the proximity of one's unit, is weakened by the fact that apartment developments are greatly shared by other residents. Apartment dwellers seldom have a private or semi-private area, outside of their unit, which they can feel is their property. When most outside areas are developed as common areas, the tenants develop apathetic attitudes toward the use of these areas. Therefore, many times vandalism occurs without it being readily noticed.

A sense of ownership may be developed by designing apartments and other residential planned developments with private or semi-private areas which may be surveyed by local residents surrounding these areas.

The areas which provide entrance to high density residential developments should be as private as possible. This can be accomplished by reducing the number of units which have access off such entries, and reducing pedestrian circulation which is unrelated to these units.

Police Access

Many new forms of housing, such as large apartment complexes, condominiums, townhouses, mobilehome parks and various residential planned developments are often developed with private streets and drives.

In this case, routine police patrolling is prohibited unless the development may be surveyed from the public streets. Even though the police may enter such developments when called on, the crime surveillance efforts of the Sheriff's officers are limited by private streets.

The depth and length of private streets and drives should be held to a minimum, and maximum visibility of these areas should be provided from public streets. All private streets should be designed as cul-de-sacs wherever good design practices will permit.

RESIDENTIAL DEVELOPMENT DESIGN

In the design of new developments, consideration should be given to features which will enhance the safety of the residents in our community. They are as follows:

1. Carports and Storage

Long rows of carports, containing storage units, strung along long alleys are an invitation to vandalism. In many cases, the carport interior is not visible from residential units because of aesthetic considerations. The safety and security of these facilities would be increased if they were located to permit surveillance by the residents. Small clusters of carports that penetrate the development are more desirable than long rows located on the periphery of the residential development. Additional storage units could also be included in the residential units to provide greater security.

2. Pedestrian Walkways and Lighting

All public and common areas should be lighted during evening hours. If openness is encouraged in the design of landscaping and structures, a few lights will illuminate larger areas, thus providing maximum security and safety within minimum energy loss. Pedestrian walkways should have an open feeling and long narrow walkways should be discouraged, especially if they are not visible from adjacent areas.

DATA COLLECTION AND EVALUATION

Criminal statistics on the relationship of the physical environment to criminal incidents are seldom available. Perhaps the best method of obtaining new data will be to maintain close communications with police activities and begin to identify those physical features which contribute most to local crime problems.

It may be feasible to develop a data bank system which will collect and analyze a variety of input on crime statistics. New building standards and design criteria based on this information could then be incorporated

into the Building Code.

The Subdivision Committee offers an important opportunity for the Sheriff's Department, Fire Department, Community Safety Department, Community Development Department, and other interested agencies to exchange ideas and propose design changes for new subdivisions. The Committee provides an opportunity for each agency to make comments regarding proposed subdivisions and thereby suggest changes to those plans which do not illustrate adequate consideration of policing problems.

At such time that the property is developed, plans must be reviewed by the City before building permits may be obtained. All such plans should conform to the Security Provisions, (Chapter 67), of the current City BUILDING CODE.

GOALS

In order that the citizens of the City of Carson may develop community awareness regarding crime prevention and take an active part in controlling crime in our City, the following goals are established:

1. Residential developments should be designed in such a manner as to engender a proprietary attitude in the residents and thereby encourage self surveillance.
2. All developments should be so designed as to discourage acts of vandalism and burglary.
3. Direct lines of communication should be developed between various departments of the City and County regarding safety policies and procedures.

IMPLEMENTATION

The above-mentioned goals may be implemented by encouraging citizen participation in crime prevention programs and the improvement of construction design standards, as follows:

1. Review setback and height standards for building to ensure adequate visual surveillance by the occupant and Sheriff's Department.
2. Encourage developers to provide adequate openness for surveillance by providing good design in new developments.
3. Encourage developers to limit the use of private streets in planned residential developments unless the streets are designed as cul-de-sacs and police surveillance is adequate from public streets.
4. Encourage developers to provide maximum surveillance of all carports and storage areas and adequate lighting of common areas for residential developers.
5. Develop within the Community Development Department, direct lines of communication with the Sheriff's Department, Fire Department and the Community Safety Department through the Subdivision Committee.
6. Adopt improved Building Code standards to thwart crime through new construction techniques and hardware that will reduce vulnerability of structures to attack by criminals.

7. Investigate the availability of Housing and Urban Development (H.U.D.) and Housing and Community Development (H.C.D.) funds for crime prevention research and development of a data bank facility.
8. Continue to review and improve all City Building Code standards to increase the safety and security of all residents.

SAFETY PROGRAM

SAFETY PROGRAM

EMERGENCY AND DISASTER PLAN

In order to effectively support the policies and objectives of the City of Carson Safety Element, the City must support a program of realistic pre-event disaster planning. This planning is to be directed toward prevention, warning, mitigation, and restoration measures which will provide optimum safety to life and property.

City Emergency Operations Plan

As authorized by the California Emergency Services Act, and in cooperation with the Defense Civil Preparedness Agency, Area E of Region VII and the California Office of Emergency Services, the City of Carson has adopted an Emergency Operations Plan. This plan provides for effective mobilization of public and private resources to meet the needs of any emergency or disaster situation. Critical hazard sites and vulnerable facilities are described and mapped, and courses of action are delineated for war-caused emergencies as well as a variety of natural disasters. The City contingency plans and procedures are coordinated with the emergency plans of the local law enforcement and fire and rescue agencies, major industrial and commercial concerns, and public utilities serving the area.

The City of Carson Emergency Operation Plan and associated contingency plans should be regularly reviewed, tested, and updated to conform to changing conditions.

Emergency Organization

By authority of the Carson Municipal Code, Article III, Chapter 7, the City's emergency services are under the direction of the Civil Defense and Disaster Council, which is composed of key elected officials and staff members.

Emergency planning and services fall under the purview of the Community Safety Department, with the Emergency Preparedness Committee, representing each City department, acting in a coordinative and advisory capacity. Critical emergency services are provided by a number of organizations working for and/or with the City:

1. Fire Suppression, Rescue, and Paramedic Service

These services are maintained by the Los Angeles County Fire Department, which serves the City of Carson on a contract basis. Extensive specialized equipment is maintained, regularly serviced, and tested by the department. All fire service workers receive intensive training in fire suppression and rescue techniques, with regularly scheduled training review. The Department currently maintains a force of 300 paramedics, who receive a five

month preliminary training course which qualifies them for an Emergency Medical Training (E.M.T.)II classification. This training is updated by a 40 hour training review annually. All other fire service workers receive training which qualifies them for E.M.T. I classification.

2. Traffic Control and Evacuation of Endangered Areas

These services are a responsibility of the Los Angeles County Sheriff, who serves the City of Carson on a contract basis. Supportive traffic control services are provided by the Carson Public Works Department, the Los Angeles County Road Department, and the Traffic Signal Maintenance Company. Assistance in evacuation of residents is provided by the Los Angeles County Fire Department.

3. Emergency Relocation Sites

The City has designated as emergency relocation sites a number of public park facilities which would be manned by City Parks Department personnel in conjunction with the American National Red Cross. Following a disaster, food, shelter, and related personal emergency services would be provided at these sites by the Red Cross and appropriate government agencies.

In the event that the park facilities are unusable or inadequate, City schools could be used as emergency relocation sites, by previous agreement between the Los Angeles City Schools and the American National Red Cross.

The City of Carson has formed a tentative agreement with California State College, Dominguez Hills, to use the college grounds for field command posts, tent cities, or Red Cross emergency stations should it become necessary.

A program of continuing liaison between the City and all emergency relief organizations must be maintained.

4. Public Works Facilities and Public Utilities

Services of public streets, sewers, storm drains, traffic signals, and street lighting are maintained by a cooperative effort of the Carson Public Works Department and appropriate County agencies. Master county-wide emergency plans, including public safety considerations and service restoration priorities have been developed by these agencies. Each public utility company also maintains emergency plans for each area of service. The City has established emergency planning liaison with the utilities. City and utility company plans must be coordinated and regularly updated to assure completeness of emergency service.

5. Communications

The City's communication system, which is currently being planned, must supply adequate emergency communications among City departments and provide radio links to the Sheriff and Fire Departments and County and State emergency agencies. An independent emergency power source should be provided, to assure retention of communications capability when the conventional power source is not operative.

Emergency communications planning should incorporate augmentation of City emergency communications capabilities by use of the Radio Amateur Civil Emergency Service (R.A.C.E.S.), which operates under the direction of the Los Angeles County Sheriff.

6. Public Information and Emergency Directives

Public information during an emergency will be disseminated through a joint effort of the City of Carson Public Information Office and representatives of the local news media. The City's public information policy must foster an attitude of cooperation with the media, as the best method of assuring that accurate, factual information is disseminated during an emergency.

Emergency directives may be broadcast directly by local radio and television stations, or through the Sig-Alert system of the local law enforcement agencies. In a war-caused emergency, designated Los Angeles area AM radio stations of the Emergency Broadcast System (E.B.S.) will broadcast official information and instructions, from higher government levels, to the local populace.

7. Radiological Monitoring

Radiological monitoring equipment is maintained by the Fire Department, whose personnel are trained in its use for both peacetime incidents and war-caused emergencies. The Sheriff, at the Carson Station, also maintains a radiological monitoring kit, and a Sergeant trained in its use.

Emergency Preparedness

In order to achieve and maintain an adequate level of civil preparedness, the City should not only review and regularly update its Emergency Operations Plan, but should take steps to assure that all personnel who will be involved in emergency operations are familiar with their role as outlined by the Plan. This familiarization should be of a continuing nature and should encompass the following:

1. Orientation to both the technical and social aspects of

possible emergency occurrences.

2. Orientation to the overall concept of emergency operations, with emphasis on the functional role of each individual as spelled out in the City's contingency plans.
3. Training, in the form of exercises, based on simulated emergency situations. These exercises should emphasize the role of supervisory personnel and communications capabilities.

In addition to maintenance of a "full readiness" posture among City personnel, the City should support a program of public information and education in emergency preparedness. Such a program should include dissemination of essential information concerning emergency preparedness in the form of brochures, news releases, City sponsored educational meetings, and emergency preparedness programs presented through the public schools and neighborhood service clubs.

Emergency Operating Center

In those jurisdictions which have suffered the effects of a major disaster, an Emergency Operating Center (E.O.C.) has proven to be a vitally needed resource in the management of post-disaster operations. Without such a centrally located base of operations in which information can be pooled and analyzed, weaknesses in coordination and wasteful overlapping of effort hamper attempts to protect life and property and initiate prompt recovery measures.

The City should support the development of a well-equipped E.O.C. which will house:

1. The base stations for the City radio system and the interjurisdictional links needed for efficient communication and coordination.
2. An operations area in which operational intelligence may be pooled and analyzed, with appropriate maps, charts, logs, and other tools of situation analysis.
3. A support area in which basic housekeeping and life support functions could be provided for personnel participating in disaster operations.

MUTUAL AID PLANNING WITH OTHER CITIES

The City of Carson is signatory to the California Master Mutual Aid Agreement, and the Joint Powers Agreement of Area E of California Civil Defense Region I and is a member of Los Angeles County Fire Area B. Through these agreements, the resources of any one party to the agreement may be made

available to any other signatory, to mitigate a probable, imminent, or existing threat to life or property resulting from an emergency or disaster situation, when the extent of the situation is beyond the capabilities of a single jurisdiction.

The City of Carson, by contractual agreement, is served by a number of County Agencies, through which the resources of neighboring counties may be made available, particularly through the Fire and Law Enforcement Mutual Aid Agreements. The ability of these departments to draw on equipment and personnel from other areas to meet emergency situations is a basic strength of the City's preparedness program.

In order to strengthen the Mutual Aid Agreements and provide a high degree of emergency response capability, the City should:

1. Promote interdepartmental coordination in support of safety and emergency preparedness.
2. Encourage intercommunity cooperation in development of emergency plans and response capability.
3. Support a high level of coordinative activity with adjacent cities, Los Angeles County, and other disaster assistance organizations, including active support of Mutual Aid Programs.

EMERGENCY AND EVACUATION ROUTES

A priority system has been established for emergency routes. The priorities apply to the routes used in evacuation of residents from an endangered or damaged area, and to the repairing or clearing of routes damaged or obstructed by a disastrous occurrence.

The California Department of Transportation takes primary responsibility for freeways and designated freeway alternate routes. Within Los Angeles County, the Metropolitan Transportation Engineering Board (M.T.E.B.) has established a county-wide Disaster Route Priority Plan. The City of Carson, working from the Cal Trans and M.T.E.B. plans, has developed a comprehensive city-wide system of disaster routes. The City's priority routing is based on a three level scale, with major arterials being the first priority. This priority routing system is designed to provide egress from all residential areas to major evacuation routes as expeditiously as possible, and may of course be adjusted as necessary to accommodate the parameters of any given disaster situation.

While the physical situation of the Los Angeles Basin precludes efficient mass evacuation of the entire metropolitan area, relocation of portions of the population from highly damaged or dangerous areas to those less affected is a distinct possibility. It is with this type of relocation in mind that the disaster route priority system was developed.

LEGEND

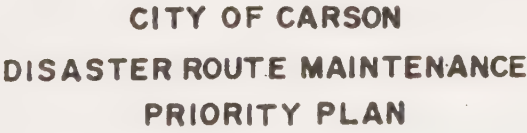
===== STATE OF CALIFORNIA

===== LOS ANGELES COUNTY

===== CITY OF CARSON PRIORITY 1

----- CITY OF CARSON PRIORITY 2

----- CITY OF CARSON PRIORITY 3



LEVEL OF ACCEPTABLE RISK

It is difficult to determine a level of acceptable risk, since any damage or loss of life or property causes hardship and suffering on an individual basis. However, a level of acceptable risk must be established for planning purposes, and it must be realistic, taking into consideration the predictability and frequency of the various occurrences, the size and structure of the City's budget, and the citizens' rights of privacy and self-determination.

The standards, specifications, and regulations which apply to safety, and which define both the level of acceptable risk and the mitigative measures to decrease risk, are detailed in a number of codes and ordinances. The City of Carson has adopted Los Angeles County codes, with some amendments which may be found in the City of Carson Municipal Code. Building standards, which establish structural regulations and safeguards and maintenance conditions, are found in the Building Code and the Fire Code. Land development regulations and guidelines which influence the location, form, and arrangement of urban development, are contained in the Zoning Ordinance, Grading Ordinance, Subdivision Ordinance, and the Fire Code. Portions of the State Health and Safety Code also pertain to land use and building construction.

Classification of acceptable risk has become more precise as technology has supplied increasingly sophisticated data on the conditions of natural and man-made disaster, and has responded with innovative means of counteracting those conditions. While these counteractive measures have significantly decreased the loss of life in disasters, the increasing density of land use and sophistication in development has caused a drastic increase in the costs of property damage. The City should periodically update its Code, Ordinances, and programs to reflect these technological improvements and increased property values, and to incorporate any newly discovered technical information. While it is generally impractical to terminate a given land use or to cause immediate demolition or restructuring of a building, the City should support a program of improved safety and updated requirements in keeping with the natural life cycle of buildings and land uses. For example, since the San Fernando Earthquake of 1971 so clearly illustrated that an "inactive" fault classification may suddenly change, the City should require the necessary research by a technically qualified geological expert to determine whether identified geologic fault zones have significant potential to become active so that practical decisions can be made as to future land use when current land use reaches its natural replacement age.

The City's criteria for reevaluating and updating its safety standards and accepted level of risk should emphasize voluntary cooperation in achieving a program level above that required by minimum acceptable standards. The City should strive to achieve the most effective balance of costs and benefits which would take into consideration the following factors:

1. The cost of loss of life and property in both the public and private sectors.
2. The cost to the private sector of safety measures.

3. The public sector costs involved in providing protection.
4. The cost of insurance as related to the cost of increased safety measures.
5. The less tangible costs and benefits in human and societal terms.
6. The equitable distribution of costs in relationship to the benefits received.

PRIORITY PROGRAM

Priorities must be established for the abatement of hazards discussed throughout this Safety Element. A priority program is necessary because the degree of hazard varies according to the type and intensity of the identified problem and because the City has limited resources to devote to a multitude of programs. Establishment of priorities is based on the following criteria:

- 1) Significance to the threat to life and property.
- 2) Timeliness of abatement measures in relationship to City development.
- 3) Cost effectiveness of abatement programs.
- 4) Public acceptance of enforced safety programs in relationship to personal privacy and freedom of choice.

The following hazard abatement programs emerge as priorities when evaluated against the above criteria:

I. FIRE SAFETY

First priority programs:

- A. Abatement of significant fire hazardous building uses which do not meet Los Angeles County Fire Department standards.
- B. Replacement of inadequate mains and hydrants.

Second priority programs:

- A. Coordination with truck and railroad companies to minimize fire hazardous transportation practices.
- B. Expansion of public education programs.

II. GEOLOGIC SAFETY

First priority program:

- A. Research to identify significant geologic exposures.
- B. Establishment of practical programs to reduce the hazards of significant geologic exposures identified by research.

Second Priority programs:

- A. Periodic review of zoning ordinance in relationship to new geologic information and new construction technology.
- B. Expansion of requirement for geologic study prior to construction permit granting when considered necessary by the City Engineer.

III. FLOOD SAFETY

First priority program:

- A. Expeditious completion of currently planned storm drains and flood control channels.

Second priority program:

- A. Incorporation of adequate flood control measures into all future development projects.

IV. CRIME SAFETY

First priority programs:

- A. Abatement of current crime conducive conditions.
- B. Careful review of proposed subdivisions and construction projects to eliminate crime conducive conditions.

Second Priority programs:

- A. Determine optimum surveillance of the City by law enforcement units.
- B. Implementation of updated BUILDING CODE provisions related to building security.

V. EMERGENCY RESPONSE

First priority programs:

- A. Provide an adequate City radio system.
- B. Construction of an Emergency Operating Center.

COSTS AND FUNDING

Safety is inherently the concern of both the public and private sectors of a community. While the government and public agencies can establish the framework of safety provisions and services in a community, the safety of any individual is determined largely by his immediate environment, over which he has the most direct control. Likewise, the costs of any safety program are borne jointly by the public and private sectors.

FIRE

The City's fire, rescue, and paramedic services are maintained by a Special Assessment District Tax. Since fire is a daily occurrence. The Fire Department generally operates at the peak efficiency allowed by its current budget. Therefore, any increase in manpower or equipment will necessitate an increase in budget, and associated tax rate. Fortunately, Carson's current level of service is excellent, and those programs which are being instituted to assure maintenance of this high level of service do not require increased revenues. Costs of increased fire safety within Carson will be largely borne by owners of fire hazardous buildings who will be required to renovate or demolish those buildings to comply with current Building and Fire Codes. Within the purview of the Redevelopment Project, the City is attempting to develop a low interest rehabilitation loan program which would lessen the financial burden of renovating fire hazardous buildings.

GEOLOGY

The cost of abating safety hazards which arise from geologic conditions may be minimal. More apropos than increased expenditure is a continuing reevaluation of priorities as new geologic information and improved technology become available. The City can most effectively decrease costs to the public sector by assuring adequate geologic site evaluation prior to construction of public buildings. Encouraging similar site evaluation for private projects will help to reduce geologic damage costs to the private sector.

FLOOD

The flood control system within the City of Carson is installed and maintained by the Los Angeles County Flood Control District, whose funds are received through county taxes or special bond issues. Traditionally a new bond issue has been passed, for flood control improvements, every six years. It is currently anticipated that no bond issue will be requested in 1976 since the current program of improvements is sufficiently financed. The deficiencies have been identified in Carson's flood control system. The minor deficiencies will be corrected within the county-wide time-phased improvement program. Currently under way is a flood control channel project in the vicinity of Wilmington Avenue.

The flood control project will be constructed as part of the City's Redevelopment Project. The Redevelopment Project is financed by tax increment bonds which are repaid through business revenues at no direct cost to the taxpayer. Thus the City's flood control problems can be largely solved through use of existing funding.

The only direct cost to the private sector of the community will be for flood insurance. However, under the Federal Flood Insurance Act, flood insurance is required only in areas designated by H.U.D. maps as flood hazard areas, and the insurance is federally subsidized to reduce the cost to the homeowners.

CRIME

The City receives the law enforcement services of the Los Angeles County Sheriff by contract agreement. The contract is of a five year duration, but the service level is reviewed each year and the cost adjusted accordingly. The law enforcement contract is one of the City's major budget items, but with the opening of the Carson Sheriff's Station the City has essentially achieved the status of having its own police department, since the Carson Station is responsible only for the City of Carson and the small, adjacent Los Angeles County strip. The Sheriff of Los Angeles County, by virtue of the contractual services arrangement, determines the minimum level of service adequate to police the City in his final and conclusive jurisdiction.

In an attempt to reduce the crime problem within the City without further increase in law enforcement costs, the City is participating in a number of federal grant programs. The Housing and Community Development (H & CD) grant, under the Department of Housing and Urban Development (H.U.D.), has three phases: Student and the Law, Parent Alert, and Social Action Research. The Greater Long Beach/Carson/Compton Multi-jurisdictional Burglary Grant aims at reduction of burglary losses through research and anticipation of burglary crimes. The City is also a participant in the Compton Judicial District Nation Priority Project which sponsors research on criminal justice in relationship to delinquency and crime and the Treatment Alternative to Street Crime (T.A.S.C.) program which operates through the County Probation Department.

EMERGENCY AND DISASTER

Due to the nature of the contract agreements with the Sheriff and Fire Departments, in an emergency the City can draw assistance from the county-wide resources of these agencies at no additional cost to the City. Other resources are available through Mutual Aid or contract agreements; however, in many cases this additional assistance is charged to the City. The City, therefore, maintains a small emergency contingency fund. In any instance where the City's resources are overdrawn, a local emergency may be declared and the Governor of California may then be requested to declare a State of

Emergency, thus making state and federal resources available to the City and its residents. These resources are made available through the California Office of Emergency Services (O.E.S.) and the Federal Disaster Assistance Administration (F.D.A.A.).

SAFETY AND EMERGENCY PLANNING

The costs of planning and implementation of safety and emergency preparedness programs is borne primarily by the City. Federal matching funds are available for portions of the salary and expenses of civil preparedness personnel, and the City has applied for this funding.

Since both the City Safety Committee and the Community Safety Department are new functions within the City government, there has been a considerable increase in the funds dedicated to safety programs. The City has been able to absorb this increase within its current revenue structure. A gradual expansion of these services is anticipated, within the existing framework of economic and technological resources for public safety. Since this framework now exists, regularly scheduled minor allocations of funds should be adequate to sustain an expanding public safety program.

In the private sector, increased safety can almost always be achieved with nominal expenditure. Many safety precautions can be implemented at no expense beyond that of acquiring and disseminating awareness. Federal, state, and local government make available considerable quantities of safety information to such volunteer organizations as the American National Red Cross.

SUMMARY

The Safety Element has been designed to establish the basic safety policies of the City and thereby assist City officials in making decisions which would affect public safety within the City. The element should serve as a guide in developing new programs and evaluating continuing programs.

Because Carson is a newly developed City, many safety problems common to older areas of the Los Angeles Basin are absent. Modern technological information has been incorporated into the General Plan and its accompanying ordinances and regulations to minimize fire and geologic hazards. However, a periodic review and revision of all City policy and regulatory documents pertaining to safety is required to maintain this advantage. Technology and information progress daily; the City must keep pace.

Carson has the normal exposures of a city having residential and substantial industrial areas. Since Carson residents are so fully aware of this situation, the City receives a high level of acceptance for its safety programs. Safety measures can be implemented through a number of means: capital programming, land use planning, subdivision, development, Building and Fire Code revisions, and general fund expenditures. While capital improvements and general fund expenditures may be required for major developments in the safety program, considerable effect can be achieved through the use of the regulatory device coupled with a policy of encouraging voluntary improvement of unsafe conditions.

The City should implement a program of regular reevaluation of its safety posture, which combined with an expanded public information program, can provide incorporation of new building code and other safety standards into the City's Safety Program. Incorporation of new standards combined with normal obsolescence of existing facilities will provide for eventual abatement of nonconforming uses.

APPENDIX

GLOSSARY

FIRE EQUIPMENT

Engine Company

An Engine Company is an apparatus which has a pump, carries hose, has a water tank of 400 to 500 gallon capacity, and ladders (10, 14 and 24 feet).

Truck Company

A Truck Company is either a Ladder Company which has an aerial ladder from 85 to 100 feet long and also carries approximately 200 feet of assorted ladders from 14 to 50 feet long or a snorkel which has an 85 foot raised platform instead of the aerial ladder. It carries the same amount of assorted ladders. The Truck companies also carry salvage, overhaul, and forcible entry tools.

Deluge Unit

The Deluge Unit is a truck which has an hydraulic operated water deluge set which can discharge 2,500 gallons per minute. It is used for large fires.

Foam Unit

The Foam Unit carries a portable foam generator and various types of foam to fight flammable liquid fires.

Reserve Engine

The Reserve Engine is a fire apparatus fully equipped that can be placed into service in case a first line engine is taken out of service for repair or it can be utilized for major fires when off-duty personnel are recalled.

Paramedic Mobile Intensive-Care Units

Mobile Intensive-Care Units are operated by Paramedic Rescue Squads and carry all of the paramedic equipment and other rescue tools.

GEOLOGIC VOCABULARY

1. Acceptable Risk

The level of risk below which no specific action by local government is deemed to be necessary.

2. Alluvial

A fine soil (sand, clay, etc.) deposited by flowing water.

3. Avoidable Risk

Risk not necessary to take because individual or public goals can be achieved at the same or less total "cost" by other means without taking the risk.

4. Differential Settling

The most common and widespread of surface effects. Subsidence centers over and extends well beyond the producing areas and frequently takes the shape of a bowl.

5. Seiche

Wave motion on an enclosed body of liquid.

6. Seismic

Activity of or relating to earthquakes.

7. Subsidence

A local mass movement of earth material in which surface material is displaced vertically downward as an area settles with little or no horizontal component.

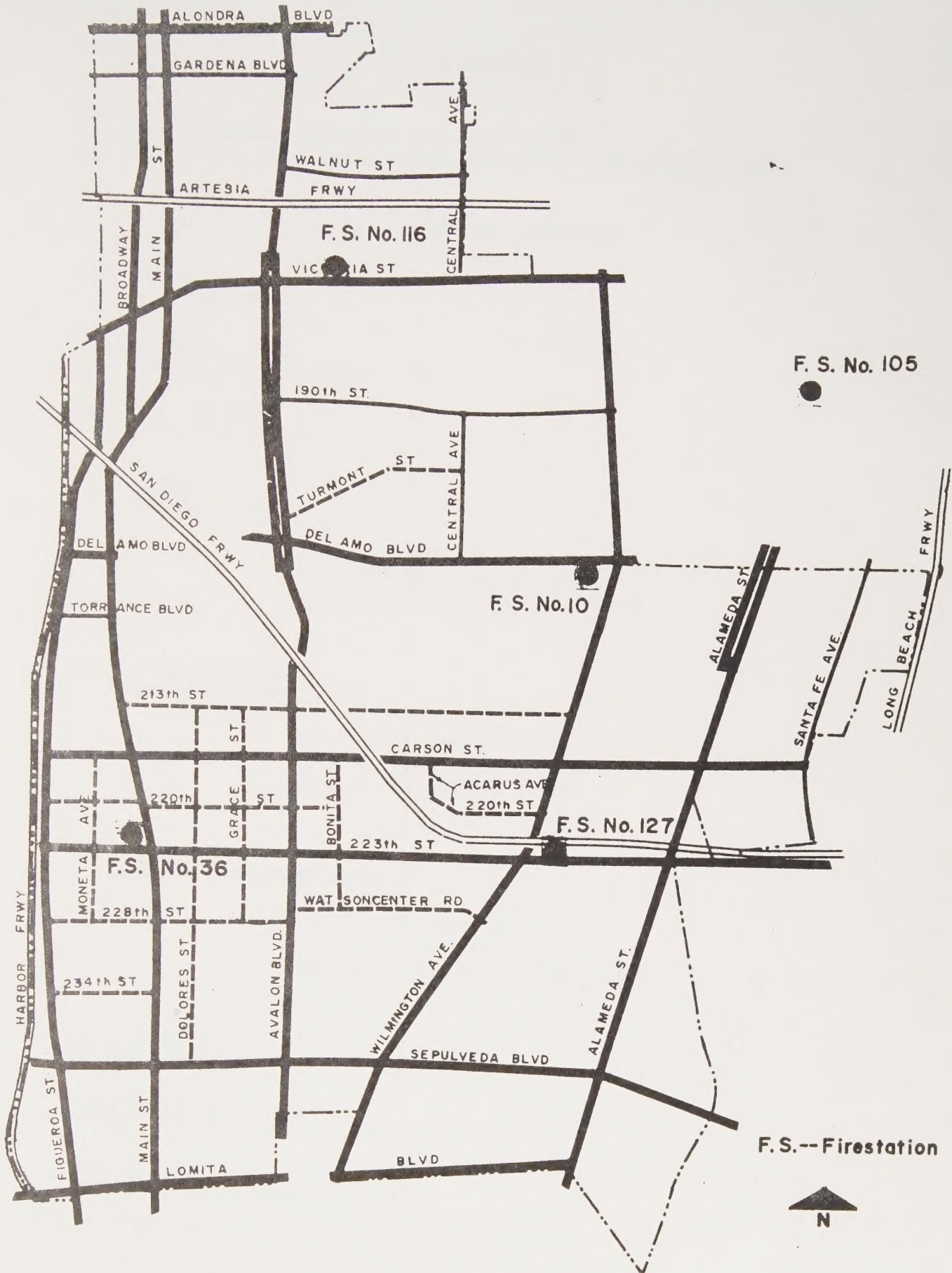
8. Unacceptable Risk

Level of risk above which specific action by government is deemed to be necessary to protect life and property.

FIRE STATION LOCATIONS

The following list of fire stations designate all Los Angeles County fire protection facilities in or adjacent to the City of Carson which serve the community in time of emergency:

FIRE STATION NO. 10 DIVISION HEADQUARTERS 1860 E. Del Amo Boulevard Carson, California 90746	Division Commander 1 Engine (Pumper) Company 1 Foam Unit 1 Reserve Paramedic Rescue Squad.
FIRE STATION NO. 36 Battalion Headquarters 127 W. 223rd Street Carson, California 90745	2 Engine (Pumper) Companies 1 Paramedic Rescue Squad
FIRE STATION NO. 95 137 W. Redondo Beach Boulevard Gardena, California 90247	1 Engine (Pumper) Company
FIRE STATION NO. 105 18915 S. Santa Fe Avenue Compton, California 90221	1 Engine (Pumper) Company 1 Deluge Unit 2 Reserve Engines (Pumpers)
FIRE STATION NO. 116 755 E. Victoria Street Carson, California 90746	1 Engine (Pumper) Company 1 Truck (Ladder) Company 1 Paramedic Rescue Squad
FIRE STATION NO. 127 2049 E. 223rd Street Long Beach, California 90810	1 Engine (Pumper) Company 1 Truck (Snorkel) Company 1 Reserve Engine (Pumper) 1 Utility Unit



CITY OF CARSON

FIRE STATION LOCATIONS

BIBLIOGRAPHY

1. City of Carson Emergency Operations Plan
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